

# ISO/TS 17420-8:2021-10 (E)

## Respiratory protective devices - Performance requirements - Part 8: Special application chemical, biological, radiological and nuclear (CBRN) filtering and radiological -nuclear (RN) filtering RPD

<b>Contents</b>		<b>Page</b>
	Foreword.....	vi
	Introduction.....	vii
<b>1</b>	<b>Scope</b> .....	<b>1</b>
<b>2</b>	<b>Normative references</b> .....	<b>2</b>
<b>3</b>	<b>Terms, definitions and abbreviations</b> .....	<b>2</b>
	3.1 Terms and definitions.....	3
	3.2 Abbreviated terms.....	5
<b>4</b>	<b>Designation and classification</b> .....	<b>5</b>
	4.1 General.....	5
	4.2 Special application CBRN1.....	5
	4.3 Special application CBRN2.....	5
	4.4 Special application Escape CBRN.....	5
	4.5 CBRN RPD summary of capabilities.....	6
	4.6 CBRN filtering RPD classes.....	6
	4.6.1 General.....	6
	4.6.2 CBRN filtering RPD.....	6
	4.6.3 Escape CBRN filtering RPD.....	6
<b>5</b>	<b>RN filters - Designation and classification</b> .....	<b>7</b>
	5.1 General.....	7
	5.2 RN filters.....	7
	5.3 RN filter classification.....	7
<b>6</b>	<b>Requirements</b> .....	<b>7</b>
	6.1 General.....	7
	6.2 Test samples.....	8
	6.3 CBRN filtering RPD.....	8
	6.3.1 CBRN filtering RPD operation.....	8
	6.3.2 CBRN filtering RPD.....	8
	6.3.3 Escape CBRN filtering RPD.....	11
	6.4 RN filters.....	12
<b>7</b>	<b>Pre-conditioning</b> .....	<b>12</b>
	7.1 General.....	12
	7.2 Components excluded from pre-conditioning – Exposure to vibration.....	12
	7.3 CBRN filtering RPD pre-conditioning.....	13
	7.3.1 Temperature and humidity pre-conditioning.....	13
	7.3.2 Humidity pre-conditioning of filters for radioactive iodomethane test.....	13
<b>8</b>	<b>CBRN filtering RPD</b> .....	<b>14</b>
	8.1 Requirements for complete CBRN filtering RPD.....	14
	8.1.1 General.....	14
	8.1.2 Airflow.....	15
	8.1.3 Protection class.....	15
	8.1.4 Temperature of operation.....	16
	8.2 Chemical resistance.....	16
	8.2.1 General.....	16
	8.2.2 CBRN1 and CBRN2 chemical resistance requirements.....	16
	8.2.3 Pass/fail criteria.....	17
	8.3 Requirements for filters and components of CBRN filtering RPD.....	17
	8.3.1 Respiratory interfaces.....	17
	8.3.2 Connectors.....	18
	8.3.3 Filters.....	18
	8.4 CBRN filtering RPD with standardized connector.....	23
	8.4.1 General.....	23

8.4.2	Components of CBRN filtering RPD with standardized connector.....	23
8.4.3	Assisted CBRN filtering RPD with a standardized connector with a tight-fitting RI.....	25
8.4.4	Assisted CBRN filtering RPD with standardized connector with a loose-fitting RI.....	26
<b>9</b>	<b>Escape CBRN filtering RPD.....</b>	<b>26</b>
9.1	General.....	26
9.2	Requirements.....	27
9.2.1	Specification of duration, <i>t</i> , of escape CBRN filtering RPD.....	27
9.2.2	Validation of Escape CBRN filtering RPD performance.....	27
9.2.3	Protection class.....	27
9.2.4	CBRN chemical resistance.....	28
9.2.5	Practical performance testing.....	29
9.3	Requirements for filters and components of Escape CBRN filtering RPD.....	29
9.3.1	Respiratory interface.....	29
9.3.2	Connectors.....	29
9.3.3	Filter.....	29
<b>10</b>	<b>RN Filters — Requirements and testing.....</b>	<b>31</b>
10.1	General.....	31
10.2	Particle filter efficiency.....	32
10.3	Gas filtration performance.....	32
10.3.1	Radioactive iodomethane retention requirements.....	32
10.3.2	Organic vapour capacity requirements.....	32
10.4	RN Filters with standardized connector.....	32
10.4.1	Work rate of filters with a standardized connector.....	32
10.4.2	Mass and size of filters with a standardized connector.....	32
10.4.3	Airflow resistance of RN filters with standardized connector.....	32
<b>11</b>	<b>Multi-functional RPD.....</b>	<b>32</b>
11.1	General.....	32
11.2	CBRN1 and CBRN2 RPD.....	33
11.3	ES CBRN filtering RPD.....	33
<b>12</b>	<b>Optional features.....</b>	<b>33</b>
12.1	General.....	33
12.2	Hydration.....	33
12.3	End of service life indicator for filters (ESLI).....	33
<b>13</b>	<b>Training components.....</b>	<b>33</b>
<b>14</b>	<b>Reliability.....</b>	<b>34</b>
<b>15</b>	<b>Inspection and practical performance testing.....</b>	<b>34</b>
<b>16</b>	<b>Test methods.....</b>	<b>34</b>
16.1	General.....	34
16.2	Toxic agent penetration and permeation tests.....	34
16.2.1	General.....	34
16.2.2	Materials and test methods.....	35
16.2.3	Liquid and vapour permeation test.....	35
16.2.4	Test report.....	37
16.3	Radioactive Iodomethane gas test.....	37
16.3.1	Test apparatus.....	37
16.3.2	Test agent.....	38
16.3.3	Filter testing.....	38
16.3.4	Test procedure.....	38
16.3.5	Radioactivity retention determination.....	39
16.3.6	Test report.....	40
<b>17</b>	<b>Marking.....</b>	<b>40</b>
17.1	General.....	40

17.2	Marking of CBRN filtering RPD and components .....	40
17.3	Escape CBRN filtering RPD marking.....	41
17.4	RN filter marking .....	42
17.5	Standardized connector.....	42
<b>18</b>	<b>Information supplied by the manufacturer .....</b>	<b>42</b>
18.1	General.....	42
18.2	CBRN filtering or RN filtering RPD information .....	42
<b>Annex A</b>	<b>(informative) Number of samples and test schedules.....</b>	<b>43</b>
<b>Annex B</b>	<b>(informative) CBRN RPD configurations.....</b>	<b>44</b>
<b>Annex C</b>	<b>(informative) Application of uncertainty of measurement.....</b>	<b>51</b>